REMARKS

Claims 1-3, 9-11 and new claim 12 are pending in this application. Claims 1 and 10 are amended.

The specification support for the amended and new claims is as follows: Claims 1 and 10 (p.15, lines 4-15) and new Claim 12 (p.17, lines 12-16).

The applicants respectfully submit that no new matter has been added.

Claims 1-3 and 9-10 are rejected under 35 U.S.C. §102(b) as being anticipated by JP 09104834. (Office Action p.2)

JP09104834 discloses a water-based pigment dispersion comprising a pigment and a crosslinked thermoplastic resin containing carboxylic groups wherein the pigment is dispersed by a water-soluble thermoplastic resin containing carboxylic groups and crosslinkable functional groups followed by cross-linking the resin with a crosslinking agent.

However, JP09104834 does not disclose crosslinking a thermoplastic resin containing carboxylic groups with a crosslinking agent under the condition that the dispersion obtained after the completion of the cross-linking has a pH of 6.0 to 8.0.

JP09104834 discloses that the water-based pigment dispersion is prepared by a process comprising the steps of (1) dispersing a pigment with a water-soluble thermoplastic resin containing carboxylic groups which has been neutralized with a basic compound, into an aqueous medium to form a water-based dispersion, (2) adding an acid to the dispersion to deposit and adhere the thermoplastic resin onto the pigment, whereby a slurry of the pigment is formed, (3) re-dispersing the pigment to

which the resin has been adhered, into an aqueous medium by neutralizing the carboxyl groups of the resin with a basic compound, and (4) crosslinking the resin with a crosslinking agent at any time after forming the dispersion in the step (1) (paragraphs 15, 82-84, 91-93 and 94-98).

JP09104834 discloses in paragraphs 98-104 that the crosslinking of the resin may be conducted in the state of the dispersion before adding an acid to deposit and adhere the resin onto the pigment, in the state of a hydrous cake obtained, after the acid deposition, by filtering the resulting slurry of the pigment, or in the state of the dispersion obtained by neutralizing the resin again with a basic compound to re-disperse the pigment into an aqueous medium, and the crosslinking is preferably conducted before adding an acid to the dispersion or after re-dispersing the pigment. In case of crosslinking the resin in the state of an aqueous dispersion, the crosslinking is conducted in an alkaline condition. In the Examples of JP09104834, the crosslinking is conducted at a pH of 8.5 to 9.5.

In contrast, in the claimed invention, the thermoplastic resin in an aqueous dispersion is crosslinked with a crosslinking agent under a neutral to acidic condition, and the pH of the dispersion obtained after the completion of the cross-linking is from 6.0 to 8.0. As apparent from the description at page 15, lines 13-15 of the specification, in the present invention, the crosslinking is conducted in the state that the thermoplastic resin does not precipitate. Therefore, the crosslinking is conducted in the state that the dispersion is a fluid, in other words, the crosslinking is conducted with maintaining the state of the dispersion wherein pigment particles are finely dispersed in an aqueous medium. This fact is also apparent from the description at page 16, line 22 to page 17, line 1 of the specification wherein it is disclosed that the resin cures with maintaining the function as a dispersant

without adsorption and aggregation of the pigment particles with each other and, in addition, a stability is provided, that is to say, the functional groups are not perfectly reacted, but it is required that functional groups, i.e., carboxyl groups, necessary to maintain the dissolved state of the resin itself remain after the crosslinking. Therefore, in the claimed invention, a product different from that of the cited reference is obtained by a process entirely different from that of the cited reference. **Since the crosslinking is conducted under such a condition, the resin is crosslinked in such a state that the resin is adsorbed to pigment particles without the pigment particles being deposited, and the dispersing state of pigment particles is maintained.** Even if the aqueous dispersion is then adjusted to an alkaline pH range, the dispersing state is maintained without the resin being totally dissolved in an aqueous medium. As a result of conducting the crosslinking under such a condition, the obtained dispersion has excellent alkali resistance and solvent resistance, as compared with a dispersion obtained by crosslinking the resin under an alkaline condition.

Example 2 and Comparative Example *2* of the present application demonstrate the advantages of the presently claimed water-based pigment dispersion. In Example 2, an aqueous dispersion of a red pigment and a styrene/α-methylstyrene/acrylic acid copolymer neutralized with triethylamine is prepared, and after adjusting the dispersion to pH 6.5 by adding thereto polyoxyethylene alkylphosphate, a carbodiimide resin is added to the dispersion and the copolymer is crosslinked. The pH of the dispersion is 6.4 after the completion of the crosslinking. In contrast, in Comparative Example 2, the procedure of Example 2 is repeated except that the crosslinking is conducted without adjusting the pH of the dispersion to 6.5, and the pH of the dispersion after the completion of the crosslinking is 8.2. As shown

in Table 1 on page 36 of the specification, the dispersion of Example 2 has excellent alkali resistance and solvent resistance, whereas the dispersion of Comparative Example 2 has poor alkali resistance and solvent resistance.

Further, the applicant's claimed process does not require a step of depositing a dispersion of pigment by addition of an acid and a step of re-dispersing a pigment to which the resin has been deposited and adhered, whereas the process taught by JP09104834 requires these steps.

In. light of the above, it. is believed that the presently claimed invention is not anticipated by and is not obvious from JP09104834.

Claims 1 and 3 are rejected under 35 U.S.C. §102(b) as being anticipated by Kato et al. (U.S. Patent No. 5,348,997). (Office Action p.3)

The Office Action states that Kato et al. disclose aqueous pigment dispersion comprising pigment and crosslinked water-soluble polymer. The Office Action further states that Kato et al. disclose that the pigment is dispersed with water-soluble polymer and after the pigment is dispersed, the polymer is crosslinked with crosslinking agent (hydrazine) to form crosslinked polymer.

However, the aqueous dispersion disclosed by Kato et al. does not contain a crosslinked water-soluble polymer.

Kato et al. discloses a crosslinking aqueous pigment dispersion comprising (A) an aqueous dispersion of a copolymer, (B) a pigment, (C) a carbonyl-containing copolymer that is obtained from a carboxylic acid monomer, and (D) a hydrazine derivative (column 1, lines 41-68 and column 2, lines

15-35).

The "crosslinking aqueous pigment dispersion" means a "crosslinkable dispersion" or a "crosslinkable composition in the form of an aqueous dispersion", and does not mean a crosslinked dispersion or a dispersion containing a crosslinked polymer. It is clearly disclosed that at least 90% by weight of the carbonyl-containing copolymer (C) in the dispersion has been solubilized by addition of an alkali and/or an organic solvent (column 1, lines 62-68). Further, it is disclosed that since crosslinking takes place between molecules of component (A), between molecules of component (C) and between components (A) and (C), the dispersion provides a *dry* film having markedly improved water resistance (column 2, lines 36-43).

In the Examples of Kato et al., aqueous dispersions (coating compositions) are prepared without crosslinking the polymers and coated onto a substrate to form films, and the films are evaluated (column 12, lines 3-26 and column 13, line 41 to column 14, line 61).

Thus, it is apparent that the aqueous dispersion of Kato et al. contains a crosslinking agent, but the crosslinking takes place after coating the dispersion onto a substrate followed by drying it. The aqueous dispersion of Kato et al. does not contain a crosslinked polymer having carboxyl group.

As demonstrated by the second Declaration dated May 10, 2003, the applicant's claimed dispersion has an improved stability as compared with dispersions which contain a crosslinking agent, but a resin dispersant is not crosslinked.

Further, of course, Kato et al. does not teach or suggest crosslinking a thermoplastic resin

containing carboxylic group with a crosslinking agent during the preparation of an aqueous pigment dispersion under the condition that the dispersion obtained after the completion of the crosslinking has a pH of 6.0 to 8.0.

In light of the above, it is believed that the presently claimed invention is not anticipated by and is not obvious from Kato et al.

In view of the aforementioned amendments and accompanying remarks, claims, as amended, are in condition for allowance, which action, at an early date, is requested.

If, for any reason, it is felt that this application is not now in condition for allowance, the Examiner is requested to contact Applicants undersigned attorney at the telephone number indicated below to arrange for an interview to expedite the disposition of this case.

In the event that this paper is not timely filed, Applicants respectfully petition for an appropriate extension of time. Please charge any fees for such an extension of time and any other fees which may be due with respect to this paper, to Deposit Account No. 01-2340.

Respectfully submitted,

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